



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/062,546	02/05/2002	Francis Bryselbout	000348-297	3132

7590

05/17/2006

E. Joseph Gess  
BURNS, DOANE, SWECKER & MATHIS, L.L.P.  
P.O. Box 1404  
Alexandria, VA 22313-1404

EXAMINER

SINES, BRIAN J

ART UNIT	PAPER NUMBER
----------	--------------

1743

DATE MAILED: 05/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/062,546

Applicant(s)

BRYSELBOUT, FRANCIS

Examiner

Brian J. Sines

Art Unit

1743

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 22 February 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 3-8, 10-14, 16-18, 20-24, 26-29 and 31 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 3-8, 10-14, 16-18, 20-24, 26-29 and 31 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

Art Unit: 1743

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 3 – 8, 10 – 14, 16 – 18, 20 – 24, 26 – 29 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Honda et al. (U.S. Pat. No. 5,765,397 A) (hereinafter “Honda”) in view of Saitoh et al. (U.S. Pat. No. 4,042,332) (hereinafter “Saitoh”) and Collings et al. (U.S. Pat. No. 5,073,753) (hereinafter “Collings”).

Regarding claims 3 – 6, 20 – 24 and 31, Honda teaches an air liquefaction separation process and associated apparatus. Honda indicates that in the process oxygen gas is formed. The gas, which is predominately oxygen also contains very small amounts of hydrocarbons, such as methane, ethane, propane, etc. (see col. 6, lines 49 – 65). The gas composition is therefore inherently anticipated to comprise of at least 95 % oxygen, methane, and other non-methane hydrocarbons, e.g., propane. The express, implicit, and inherent disclosures of a prior art

Art Unit: 1743

reference may be relied upon in the rejection of claims under 35 U.S.C. 102 or 103. “The inherent teaching of a prior art reference, a question of fact, arises both in the context of anticipation and obviousness.” *In re Napier*, 55 F.3d 610, 613, 34 USPQ2d 1782, 1784 (Fed. Cir. 1995). (MPEP § 2112).

Honda teaches that substances contained in very small amounts in air, e.g., hydrocarbons, such as methane, ethane and propane, are liable to explode when the concentration of these components exceeds a predetermined level in a high oxygen atmosphere (col. 1, lines 51 – 59). It therefore would accordingly have been obvious to a person of ordinary skill in the art to contemplate the monitoring of these hydrocarbon components in the such a high oxygen atmosphere.

Saitoh teaches a process for the detection of hydrocarbons other than methane in a gas comprising oxygen, methane and hydrocarbons other than methane, wherein the process comprises the stages of: a stage for the detection of the combined hydrocarbons in the gas, providing a first value for the combined or total hydrocarbon content of a sample of gas; a stage of combustion or oxidation of hydrocarbons other than methane; a stage of detection of methane in the gas sample, providing a second value; and a stage of calculation of the amount of hydrocarbons other than methane by the difference between the first and second values (col. 2, lines 1 – 27).

Regarding claim 7, Saitoh teaches that the hydrocarbons other than methane are subjected to incineration or oxidation using a catalyst (col. 2, lines 1 – 27).

Regarding claim 8, Saitoh teaches the use of a flame ionization detector ( FID detector, 5) (col. 2, lines 1 – 27).

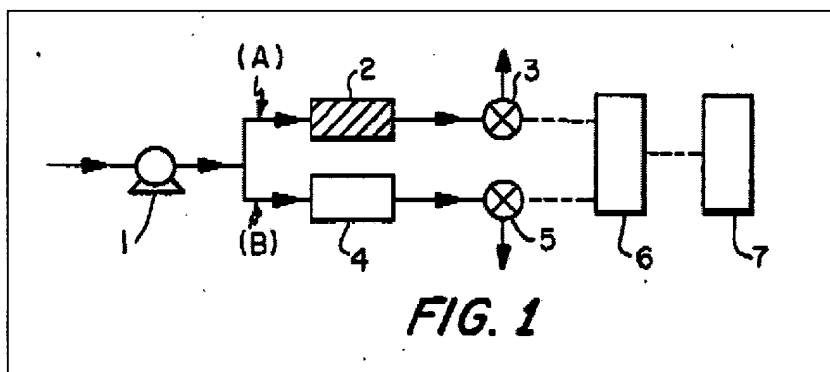
Art Unit: 1743

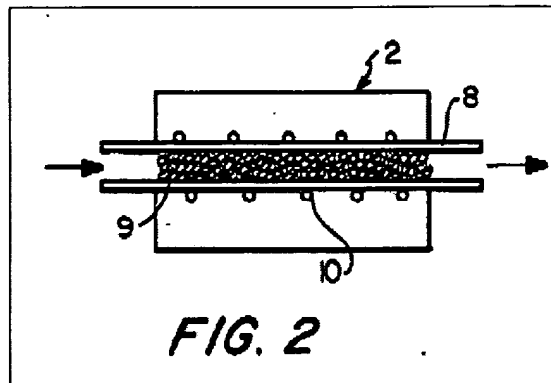
Regarding claims 10 & 26, Saitoh teaches that methane is not subjected to oxidation or incineration (col. 2, lines 1 – 27).

Regarding claim 11, Saitoh teaches an operating temperature of between and including 100 °C to 200 °C (col. 2, lines 32 – 41).

Regarding claim 13, Honda teaches the incorporation of a pipe for sample withdrawal (e.g. liquid oxygen withdrawal passage 11) (col. 7, lines 7 – 22; col. 10, lines 41 – 48; figures 1 – 6).

Regarding claims 16 & 17, Saitoh teaches a detection apparatus comprising: a means (flame ionization detector (FID) 5) for the detection of the combined hydrocarbons in a gas, which provides a first value for the combined hydrocarbons; a means (catalyst vessel 2) comprising a catalyst (9) for the combustion of the hydrocarbons other than methane; a means (FID 3) for the detection of methane, which provides a second value; and a means (calculator 6) for the calculation of the amount of hydrocarbons other than methane by the difference between the first and second value (col. 2, lines 1 – 66; figures 1 & 2). Saitoh also teaches a means for introducing gases to be analyzed (col. 2, lines 1 – 27).





Collings teaches that flame ionization detectors use a hydrogen flame during operation. Collings teaches that mixtures of hydrogen and buffer gases are often used as the fuel gas for the flame ionization detector (col. 1, lines 23 – 34). Thus, it would have been obvious to a person of ordinary skill in the art to incorporate the use of a means for introducing hydrogen into the disclosed system in order to facilitate effective flame ionization detection for the system. Additionally, in using a flame ionization detector that is well known in the art to be suitable for performing measurements on oxygen-containing mixtures, it would have been obvious to a person of ordinary skill in the art to use an appropriately specified hydrogen gas flow rate and composition in order to ensure optimal detector performance and effective gas detection.

Regarding claims 14, 18, 28, 29 and 31, Honda teaches an apparatus for separating and purifying oxygen from air. Honda teaches an apparatus comprising: a withdrawal means (liquid oxygen withdrawing passage 11) for the withdrawal of a sample of liquid oxygen; a means (main heat exchanger 4) for the evaporation of liquid oxygen, producing an evaporated gas (col. 5, line 6 – col. 6, line 17; col. 7, lines 30 – 43; figure 6). Honda does not specifically teach the incorporation of a hydrocarbon detection device according to Saitoh, as discussed above. Although Honda does indicate that the hydrocarbon composition of the liquid oxygen is ascertained after gasification of the liquid oxygen in the main heat exchanger (4) (see col. 7, lines

Art Unit: 1743

31 – 67). Hence, it is inherently anticipated that a hydrocarbon detection device is utilized in this measurement (MPEP § 2112). In addition, the use of alarms in gas detection systems, and in particular for detecting explosive or hazardous gases, is notoriously well known in the art (MPEP § 2144.03). As a result, a person of ordinary skill in the art would have recognized the suitability of utilizing the hydrocarbon detection device of Saitoh et al. for the intended purpose of detecting hydrocarbon levels within the purified oxygen (MPEP § 2144.07). Furthermore, a person of ordinary skill in the art would accordingly have had a reasonable expectation for success of utilizing the detection device of Saitoh for detecting hydrocarbon levels within the product stream of the Honda system. The Courts have held that the prior art can be modified or combined to reject claims as *prima facie* obvious as long as there is a reasonable expectation of success. See *In re Merck & Co., Inc.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986) (MPEP § 2143.02). Therefore, it would have been obvious to a person of ordinary skill in the art to incorporate the teachings of Saitoh and Collings with the system of Honda to provide for the limitations of claims 18, 28 and 29.

Regarding claims 12 & 27, Honda in view of Saitoh, as discussed above, teach all of the structure required to perform the recited method, which merely recites the conventional operation of that structure. It would have been obvious to a person of ordinary skill in the art to perform the method recited in the instant claims upon the apparatus, as taught by Honda in view of Saitoh and Collings, as such is the intended operation of that apparatus.

#### ***Response to Arguments***

Applicant's arguments with respect to the present claims have been considered but are moot in view of the new ground(s) of rejection.

Art Unit: 1743

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian J. Sines whose telephone number is (571) 272-1263. The examiner can normally be reached on Monday - Friday (11 AM - 8 PM EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill A. Warden can be reached on (571) 272-1267. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read "Brian J. Sines". The signature is stylized with a large, looping initial "B" and a long, sweeping underline.